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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/601,085	06/20/2003	Mukesh K. Jain	FA/254	7055
28596 7590 02/03/2010 GORE ENTERPRISE HOLDINGS, INC. 551 PAPER MILL ROAD P. O. BOX 9206 NEWARK, DE 19714-9206				
EXAMINER				
MATZEK, MATTHEW D				
ART UNIT		PAPER NUMBER		
1794				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/601,085

Applicant(s)

JAIN ET AL.

Examiner

MATTHEW D. MATZEK

Art Unit

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 November 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6,8,10-14,16-19,24-26,28-34,36-41,43-47,53-55,57-59 and 61-68 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6,8,10-14,16-19,24-26,28-34,36-41,43-47,53-55,57-59 and 61-68 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/24/2009 has been entered.

Response to Amendment

2. The amendment dated 11/24/2009 has been fully considered and entered into the Record. Claims 1, 16, 24, 32, 33, 41, 53, 58 and 66 have been amended. The amended claims contain no new matter. Claims 1-6, 8, 10-14, 16-19, 24-26, 28-34, 36-41, 43-47, 53-55, 57-59 and 61-68 remain active. The previous prior art rejection has been withdrawn as the applied art failed to provide for the claimed linking groups or polyethersulfone or sulfonated polyetherether ketone.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-6, 8, 10-14, 16-18, 24-26, 28-34, 36-41, 43-47, 53-55, 57-59 and 61-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weisse et al. (US 6,451,921 B2) in view of Maples (US 6,395,383 B1).

a. Weisse et al. disclose block copolymers with sulfonated aromatic polyether sulfone units for use as semi-permeable membranes. The block copolymers provide compounds which in addition to an adjustable degree of sulfonation have a defined length of sulfonated and unsulfonated blocks (abstract). The term "sulfonated" is taken to mean the presence of pendant sulfonic acid groups on the aromatic rings and said acid may be converted to sulfonic acid salt (col. 4, lines 20-31). The sulfonated aromatic polymer comprises repeating aromatic groups of 6 membered single rings comprising two O heteroatoms (col. 4, lines 1-13). The block copolymer comprises a composite of sulfonated and non-sulfonated polymers (claim1). The aromatic groups may be linked by sulfone groups (col. 3, lines 60-67) or ether units (col. 4, lines 1-14).

b. This applied patent fails to teach the instantly claimed sulfonic acid equivalent weight, permeability, and the lamination of this membrane to a layer of expanded PTFE to form a composite structure.

Regarding the claimed sulfonic acid equivalent weight and permeability:

c. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have made the sulfonated aromatic polymer of Weisse et al. with

the instantly claimed sulfonic acid equivalent weight, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. It would have been obvious to have discovered the instantly claimed sulfonic acid equivalent weights as the degree of sulfuric acid groups present is directly related to the hydrophilic nature of the material; the higher the concentration the easier it is to allow water vapor to pass and give desired vapor permeability as claimed.

d. Additionally, Weisse et al. and Applicant use the sulfonated aromatic polymeric layer to impart liquid water resistance while being moisture vapor permeable. Therefore, one working in the art would optimize the features taught in Weisse et al. to arrive at the same end result.

Regarding the combination with a layer of ePTFE:

e. Weisse et al. teach semi-permeable membranes, but fail to teach the lamination of the sulfonated aromatic polymer to at least one layer of expanded PTFE to form a composite structure.

f. Maples discloses a selectively permeable protective covering capable of transmitting high quantities of water vapor while also being capable of significantly restricting the passage of dangerous chemicals (Abstract). This invention is directed to use as a protective garment or associated accessories (Abstract). The selectively permeable composition is preferably applied to a porous polytetrafluoroethylene (PTFE) support substrate wherein said composition resides within at least a portion up the entire thickness of the porous support substrate (col. 4, lines 58-67). The PTFE may be

expanded (claim 10). The garment of Maples may further comprise an external facing fabric such as a woven or knit textile of polyester, cotton or wool (col. 12, lines 35-40). The selectively permeable covering may further comprise additional layers of materials such as apparel fabrics or moisture vapor permeable polymeric layers (col. 12, lines 4-48). The applied article has a water vapor transmission rate greater than 2000 g/(m²*day) (col. 4, lines 40-44) and a permeability to bis-2-chloroethyl sulfide (2CES) of 0.02 cm/sec or less at 80% relative humidity (claim 1). The invention of Maples serves as a chemical protective covering that resists the transmission of noxious chemicals, and 2CES in particular, but describes the chemical's permeability rather than its permeation, demonstrating that the resistance in each case has been calculated differently. On its face, it appears that the invention of Maples anticipates the claimed permeation rate of 2CES, as the thrust of the invention is to prevent the chemical's transmittance as well as the fact that it meets the structural and compositional limitations of the claimed invention. Furthermore, adding amine-acid moieties from sulfuric acid to the polyamine polymer layer affects the breathability and 2CES permeability of the polyamine layer (Example 1). By adding amine-acid moieties from sulfuric acid to the polyamine layer the breathability increases while the 2CES permeability decreases. Therefore, it would have been obvious to one of ordinary skill in the art to have optimized the amount of amine-acid moieties added to the polyamine layer to arrive at the claimed 2CES permeability rates motivated by the desire to form an article with high breathability and resistance to 2CES even at relatively high humidity rates.

g. The composite may be further treated to make the article waterproof (col. 30-40).

- h. Weisse et al. and Maples are from the same field of endeavor, (i.e. selectively permeable articles).
- i. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to have taken the supporting substrates and textile fabrics of Maples and surrounded the semi-permeable membrane layer of Weisse et al. to form a protective garment as set forth in Maples.
- j. Claims 2-4 are rejected as the invention of the applied patent may be used as blankets, tents, sleeping bags, sacks, footwear, gloves, garments and the like ('383 col. 6, lines 29-32).
- k. Claim 6 is rejected as the fabric laminate may comprise multiple nonwoven, knit or woven layers of polyamide, cellulosic, polyester, and polyurethane ('383 col.7, lines 37-62). Figure 19 of the '383 patent demonstrates the use of multiple layers of apparel fabric (col. 12, lines 24-28). Claims 12-14 are rejected as both Weisse et al. and Maples are directed to semi-permeable articles designed to minimize the amount of noxious chemicals that pass through said articles. Therefore, it would have been obvious to one of ordinary skill in the art to have created a composite article that meets or exceeds the claimed noxious chemical permeation rates of pinacolyl methylphosphono fluoridate with the intent of forming a protective garment resistant to known poisons. Claim 17 is rejected as Weisse et al. teach the use halogen specie substitution on the aromatic groups (col. 7, lines 30-45). The sulfonated aromatic polymer of Weisse et al. may be crosslinked (col. 4, lines 13-19).

4. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weisse et al. (US 6,451,921 B2) in view of Maples (US 6,395,383 B1) as applied to claim 1 above, and further in view of Kershner et al. (US 4,824,916). Weisse et al. disclose the crosslinking of the sulfonated aromatic polyether, but fail to teach its ionic crosslinking.

- a. Kershner et al. teach water-insoluble, cross-linked sulfonated aromatic polyamides (Title and Abstract). The applied invention may be used to create membrane discriminating layers (col. 9, lines 26-30) and useful in textile applications (column 9, line 13). The polymer can be applied to a porous support to form a thin discriminating layer in a composite structure (col. 9, lines 40-45). The sulfonated aromatic polyamides of Kershner et al. have pendant groups comprising sulfonic acid groups in anionic form (col. 6, lines 36-43) and contain the claimed at least one repeating aromatic group (col. 2).
- 2). The presence of the sulfonic acid groups contribute to making the material water soluble (column 7). The materials may be crosslinked to immobilize the polymers so that they may form a membrane. These materials are generally hygroscopic and very permeable to water vapor (column 8, lines 67+). The ionically cross-linked polymers have special utility as a protective and water-resistant coating (col. 9, lines 26-31) and form a reversible crosslink (col. 9, lines 1-5).
- b. Weisse et al. and Kershner et al. are from the same field of endeavor (i.e. sulfonated aromatic polymers used as membranes).
- c. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to have modified the invention of Weisse et al. with the ionic crosslinking of Kershner et al. rather than conventional covalent crosslinking

motivated by the desire to form an article that is reversibly crosslinked. A reversible crosslink is useful in many applications including when recycling the polymeric layer.

Double Patenting

5. Claims 1-6, 10-14, 16-19, 24-26, 28-34, 36-41, 43-47, 53-55, 57, 58 and 61-68 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-10, 15, 16, 18-28, 30, 32-41 and 43-53 of copending Application No. 10/818,214. Although the conflicting claims are not identical, they are not patentably distinct from each other because both articles are directed to moisture vapor transmissive protective laminates comprising an aromatic sulfonated polymer and would possess the claimed toxin permeation rates as the applied article claims have the same structure and composition as the claimed invention, which provides the article with its protective properties.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Response to Arguments

6. Applicant's arguments with respect to claims 1-6, 8, 10-14, 16-19, 24-26, 28-34, 36-41, 43-47, 53-55, 57-59 and 61-68 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW D. MATZEK whose telephone number is (571)272-2423. The examiner can normally be reached on M-F, 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Tarazano can be reached on 571.272.1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew D Matzek/
Examiner, Art Unit 1794